WHAT IS CLAIMED IS:

1.   A method of determining a start of a transmitted frame at
5   a receiver on a frame-based communications network, the method
comprising:

providing a preamble format for the transmitted frame
wherein a plurality of identical copies of a preamble symbol
sequence are transmitted sequentially;

10   filtering a received transmitted frame using filter
coefficients matched to the preamble symbol sequence to provide
a correlation sequence;

computing a squared-magnitude of the correlation sequence;

low-pass filtering the squared-magnitude of the correlation
15   sequence to provide a low-pass filtered correlation signallow-
pass filtered signal;

delaying the low-pass filtered correlation signal to provide
a delayed low-pass filtered correlation signal;

multiplying the delayed low-pass filtered correlation signal
20   by a first fixed predetermined threshold to provide a multiplied
correlation signal;

comparing the multiplied correlation signal with the low-
pass filtered correlation signal to provide a correlation
difference indicator;

25   detecting energy of the received transmitted frame and low-
pass filtering the energy to provide a low-pass filtered energy
signal comparing detected energy to a fixed energy threshold to
provide a threshold compared energy signal;

multiplying the low-pass filtered energy signal by a second
30   fixed predetermined threshold to provide a multiplied energy
signal;

comparing   the   threshold   compared   low-pass filtered
correlation signal with the threshold compared mulitiplied energy
signal to provide a correlation peak indicator; and

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forming a logical-AND of the correlation difference indicator and the correlation peak indicator to determine a match/no match comparison indicative of the start of a transmitted frame.

2.   The method of Claim 1, wherein the filtering includes low-pass filtering the received transmitted frame using filter coefficients matched to the preamble symbol sequence to provide a filtered received signal and averaging a squared-magnitude of the filtered received signal.

3.   The method of Claim 1, wherein the filtering is linear matched filtering.

4.   The method of Claim 3, wherein the filter coefficients are a time-reversed complex-conjugated repeated preamble symbol sequence.

5.   The method of Claim 4, wherein the time-reversed complex-conjugated repeated preamble repeated preamble symbol sequence is a constant-amplitude zero-autocorrelation sequence.

6.   The method of Claim 4, wherein the time-reversed complex-conjugated repeated preamble symbol sequence includes complex symbols drawn from a Quadrature Phase Shift Keying or 4-Quadrature Amplitude Modulation constellation.

7.   The method of Claim 4, wherein the time-reversed complex-conjugated repeated preamble symbol sequence includes 16 symbols repeated at least 3 times, every 4-symbol sub-sequence of which being constant amplitude, zero autocorrelation.

8.   The method of Claim 1, wherein the steps of multiplying

include first computing 10*log10(.), or an approximation of
10*log10(.), of each operand to provide a plurality of log
5   operands and then adding each of the plurality of log operands.

9.   A method of determining a a start of a transmitted frame at
a receiver on a frame-based communications network, the method
comprising:
10   providing a preamble format for the transmitted frame
wherein a plurality of identical copies of a preamble symbol
sequence are transmitted sequentially;
        filtering a received transmitted frame using filter
coefficients matched to the preamble symbol sequence to provide
15   a correlation sequence by low-passlinear matched filtering the
received transmitted frame using filter coefficients matched to
the preamble symbol sequence to provide a filtered received
signal and averaging a squared-magnitude of the filtered received
signal, the filter coefficients being a time-reversed complex-
20   conjugated repeated preamble symbol including time-reversed
complex symbols drawn from a Quadrature Phase Shift Keying or 4-
Quadrature Amplitude Modulation constellation and having 16
symbols repeated at least 3 times, every 4-symbol sub-sequence
of which being constant amplitude, zero autocorrelation;
25   computing a squared-magnitude of the correlation sequence;
        low-pass filtering the squared-magnitude of the correlation
sequence to provide a low-pass filtered correlation signallow-
pass filtered signal;
        delaying the low-pass filtered correlation signal to provide
30   a delayed low-pass filtered correlation signal;
        multiplying the delayed low-pass filtered correlation signal
by a first fixed predetermined threshold by first computing
10*log10(.), or an approximation of 10*log10(.), of each low-pass
filtered correlation signal operand to provide a plurality of
35   low-pass filtered correlation signal log operands and then adding

each of the plurality of low-pass filtered correlation signal log operands to provide a multiplied correlation signal;

5   comparing the multiplied correlation signal with the low-pass filtered correlation signal to provide a correlation difference indicator;

detecting energy of the received transmitted frame and low-pass filtering the energy to provide a low-pass filtered energy

10   signal comparing detected energy to a fixed energy threshold to provide a threshold compared energy signal;

multiplying the low-pass filtered energy signal by a second fixed predetermined threshold by first computing $10*\log10(.)$, or an approximation of $10*\log10(.)$, of each low-pass filtered energy

15   signal operand to provide a plurality of low-pass filtered energy signal log operands and then adding each of the plurality of low-pass filtered energy signal log operands to provide a multiplied energy signal;

comparing   the   threshold   compared   low-pass   filtered

20   correlation signal with the threshold compared mulitiplied energy signal to provide a correlation peak indicator; and

forming   a   logical-AND   of   the   correlation   difference indicator and the correlation peak indicator to determine a match/no   match   comparison   indicative   of   the   start   of   a

25   transmitted frame.

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